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## Analysis

# U.S.-German Tank Backs Disputed Pentagon System

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(Sun Military Correspondent)

Washington, Nov. 3—The increasing use of the project-management system in the Defense Department's weapons-production enterprises was one of several causes leading to last week's resignation of the chief and deputy chief of the Navy's Bureau of Ships.

## Chief Has Less Power

Their dislike of it was plainly stated. It gives to a single officer (other than the bureau chief) the prime responsibility for pushing research, development and production of some new weapon or equipment.

With that officer directly responsible to the Secretary of Defense and assured highest priority for his demands there is a diminution of the responsibility and authority of the bureau chief; also with the project-manager's power to create his own staff of experts from within the bureau there is an obvious lessening of the bureau's total resources for handling its own very large and essential functions.

That is one side of the issue. The other is that when an officer of great competence and determination is given any such powers, and freed of other obligations, he can concentrate on the job in hand and presumably do it better and far more rapidly than if he has to fight his way through countless standard office practices, wait for approval by several layers of authority and wait for authority to get materials essential to his progress or equally essential professional assistance.

## Advantages Unmistakeable

In an era of great complexity and rapid technological developments the advantages of the project management system, whatever its demerits, are unmistakable.

There is an impressive record of achievement in the recent past and a clear intent to make use of it in the future, particularly where great speed of development is required.

Outstanding examples of its great success in the Navy are provided by the epochal development of the nuclear-powered submarine, largely because Vice Adm. H. G. Rickover (a captain then) had not only vast competence and initiative but the large powers that project management

gave him, and of the Polaris missile similarly rushed to completion at great speed under Rear Adm. William F. Raborn, Jr.

Those two grand successes tend to make the outsider think project management with its highest-priority claims for men and materials is so good that it should be used universally.

The Bureau of Ships admirals spoke for many others when they pointed out that these two projects cut deep into the efficiency of several bureaus and that too many high priorities are simply self-defeating because they run into each other.

## Nike Zeus Succeeded

The examples of Air Force success with project management would certainly include the Titan II-C, which has been outstanding. Those in the Army would obviously include the prolonged and complex work on the Nike Zeus and its successor Nike X, also the light observation helicopter.

But for importance and near-perfection of method—largely because it involves both West Germany and the United States (and in all probability other NATO countries eventually)—one must look at the complex and methodical way in which these two countries' main battle tank of the 1970's is being developed from scratch.

This is obviously a most important instrument for a future conventional war, justifying the great pains being taken with it. For two years there has been a general knowledge of the enterprise, but it now is possible through the Army Material Command, to be specific about what has been achieved thus far, and how, and with what clear promise.

## High Hopes Evident

That both West Germany and the United States have high hopes for this most scientifically developed instrument of conventional warfare — preparations for which proceed steadily even when American public interest is concentrated on the wholly different instruments of counter-insurgency — is manifest. Hopes should be high, for these improvements over today's tanks are regarded as certain.

1. An "optimum" balance of characteristics of propulsion, fire, armor, protection, mobility, and reliability, from size

Development of a very high-horsepower engine employing a new variable-compression ratio principle promising more than twice as much power as produced by current diesel motors of like size and structure. This is a true quantum jump. The German wing of the cooperative team has a rival engine of more conventional nature.

3. United States backing of a combined gun-missile as main armament (the Shillalagh) regarded as far superior to anything in existence. German backing of a high-velocity gun, with choice here (and in the motor) still to be determined.

4. Full agreement on the design configuration of the ultimate tank.

The aim has been, as always, to get into the new tank great mobility, great firepower and great protection from enemy hits, but manifestly the attaining of any of these factors to its maximum would conflict with attainment of the other two.

So the need has been to give and take in such quantities as to assure the best available overall result. Also to do this with such foresight as to permit construction on the original design with a minimum of design changes during the development and production stage.

Interestingly, all of this has been done on paper fed repeatedly into a computer. "Battles" with "rubber" tanks have been measured by computer to prove a theory.

This was made possible by the early selection of a program management board perfectly balanced between the two countries, and its selection of a professional design-effectiveness study group for work covering a full year.

## Lockheed Chosen

Chosen by competition for that task was the Lockheed missiles and space company, unconcerned with tanks but widely experienced in the modern technique of mathematical appraisal of all factors through advanced use of computers.

A joint engineering agency and a joint design team got their personnel from the General Motors Corporation in this country (which won by competition) and the Terman Development Corporation (set up by the West German Government as its contractor for the tank).

Their work is carried on jointly in Germany during the design stage and will be carried on jointly in the United States during the pilot building stage, but with both sets of nationals required to agree on each step, and with both reporting at intervals to their superiors in Bonn and in Washington. This constant checking would

seem to cause great delay. Actually the plan is on schedule, and the Americans at least are convinced that by getting agreement at every step there is a larger likelihood of reduced changes later on — so that thus far the total span of production time is declared to be normal.

## No Political Differences

When it comes to tests, both the United States-built and the German-built tanks will be tested at home and abroad, to make sure that the agreed-upon isometric measurements have been met precisely.

Political differences thus have been zero. There have been technological troubles owing to different standards and practices, but these were largely met by creation of a multiple-engineering dictionary for mutual use.

The present United States choice for firepower is the dual-threat Shillalagh which can shoot either a shell or a missile. The Germans pin their hope on another high velocity gun, rather than on a missile combination, and have one nearly ready for consideration.

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